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## **Questionnaire Modules from STEPS, CINDI, CARMEN, BRFSS, TFI, and IPAQ**

- STEPS: Stepwise Approach to Surveillance of Noncommunicable Disease Risk Factors, WHO
- CINDI: Countrywide Integrated Noncommunicable Disease Intervention Programme, CINDI Health Monitor, WHO Regional Office for Europe
- CARMEN: Conjunto de Acciones para la Reduccion Multifactorial de Enfermedades No transmisibles, WHO Regional Office for the Americas
- BRFSS Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention (CDC)
- TFI WHO Tobacco Free Initiative standardised questions
- IPAQ International Physical Activity Questionnaire, CDC and the Karolinska Institute

# QUESTIONNAIRE DEVELOPMENT

## GOALS AND STANDARDS

### Goals

- Work toward validated questionnaire sections and items.
- Minimize respondent burden.

### Standards

- Ensure that good trend data are obtained by collecting consistent information over time.
- Ensure that data collected are directly linked to prevention use (programme planning and evaluation, policy development, etc.).

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

**Developing questionnaire comparability across countries** Simplicity is key. Questions for obtaining global comparison data across countries should be few in number, due to cost, respondent burden, and difficulty in obtaining general consensus on question wording. It is crucial that adequate space is left on the questionnaire for collecting country-specific priority information.

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

**Using site-added questions** The incorporation of site-added questions in a questionnaire offers flexibility to sites for monitoring their own priorities. This translates to buy-in, participation, and support of a national data collection system. As local sites take ownership of their own data, this approach helps build capacity—both at the local level as skills are developed to administer and analyze results, but also at the national level, as more sites participate in the surveillance system over time.

**Treating questionnaire development as an iterative process** Remember that the goal is to collect accurate data. Relevant content experts need to be involved in the design of your questionnaire. The final questionnaire may go through five to seven drafts or versions before it is ready to be used in the field.

Pilot testing the questionnaire is the last step in the questionnaire development process. A questionnaire development team should check the general flow of the questionnaire topics, the arrangement of questions within each topic, and the clarity and understandability of questions and directions.

**Using a consensus building approach to questionnaire development** Establishing a surveillance system and developing the questionnaire(s) that will be used require many people working together across levels and sectors, and with staff from other surveys. Involve people with a wide range of experience in health-related issues and questionnaire design.

Policy makers should be included in the entire survey process, beginning as early as the questionnaire development stage. This may result in a greater buy-in and use of data.

Involve relevant survey research experts from the beginning. They can provide information on content, measurement, data analysis, and statistical support.

Be sure that your questionnaire and surveillance system meets needs at all levels — from global to local. A consensus approach to questionnaire development builds buy-in, support, and ownership for those involved, and provides a good example for health programme and policy development as well.

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

data are being entered. This can result in a cost savings to your survey.

### **Determining the length of questionnaire**

The length of the questionnaire itself has to be considered. As the number of questions included on a questionnaire increases, the burden on the respondent increases. As respondent burden increases, so does the risk that a respondent might tire and either terminate the interview before all questions have been asked or provide false answers to simply get through it as quickly as possible. Questions placed at the end of a lengthy questionnaire are in jeopardy of not being completed at all or not being completed accurately.

Costs associated with data collection also increase as questionnaire length increases. These costs are in part due to an increase in the amount of interviewer time required, questionnaire printing costs, etc.

Breadth of topic coverage of the questionnaire also is important. Carefully balance the number of topics included versus the amount of detail required on any specific topic.

### **Translating the questionnaire**

The questionnaire may need to be translated into additional languages depending on subpopulations in each country. Weigh the number of languages needed and the cost of translations. Be sure to consider the impact on sample size needed to collect subgroup data (see section on calculating the sample size).

After the instrument has been translated, it must be translated back into the original language to ensure that no errors are introduced. If there are regional differences in languages, be sure to test the translations in each of the regions.

Independent, professional translators who are familiar with the issues of providing accurate translations are preferable to those with less experience.

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

**Designing the questionnaire** Check for ambiguity in the wording of questions. Try to ensure that respondents cannot interpret the meaning of words differently. Adapt wording to the vocabulary and reading level of the respondents.

Use questions that are appropriate for your country or region. Avoid using abbreviations and jargon.

If necessary, add a note in the labeling of the question, specifying the exact meaning of a word or provide culturally relevant examples in the question. For example, in some areas, the word "wine" may be considered as synonymous with alcohol. Another example is the confusion between quantities such as "serving," or "slice, etc."

The time frames used in questions can greatly influence the type of data obtained. Results and reliability will be impacted by factors such as the risk factor being assessed, frequency of data collection, and sample size. Be aware of holidays or special events that can occur during the data collection as they can result in unusual food or drink intakes, as well as different habits. Careful consideration should therefore be given to the time frame used, and attempts should be made to be as specific as possible. For those sections of the questionnaire that are self-administered, consideration must be given to issues such as font and instructions. Instructions must be easy to understand and stand out so that respondents pay attention to them. The font must be a large enough size and style for respondents to read easily.

Be sure that all response categories are mutually exclusive and provide for all responses.

Use skip patterns so respondents do not have to answer questions that do not pertain to them. If a question refers to a previous question, be sure to include enough wording of the previous question to avoid confusion. Be sure to ask questions in a logical order.

If possible, keep in mind the coding scheme that will be used when

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

The decision of whether or not to modify a question must be carefully balanced to determine to what extent question wording and order changes impact measurement properties.



More information on question reliability and validity is provided with the Resources at the end of this section.

**Maintaining a balance between question consistency and quality of information collected**

What is at stake with regard to question modification is the need, on the one hand, to keep question wording the same over time for trend data analysis, and the need, on the other hand, to ensure that the questions are performing optimally to provide important information. Retain consistent question wording to the extent possible, and make wording changes only when a question is not providing clear information.

**Decreasing measurement errors**

Measurement error is the difference between an observed score and a true score. Measurement error can be kept to a minimum with careful planning and design of the questionnaire. Questions should be limited to one issue, and simple wording should be used as longer questions get confusing.

- It is important to make sure the recall period being assessed can be remembered by the respondent. Words such as "regularly" and "occasionally" mean different things to different people. Use more specific words, such as "daily," "weekly," "monthly," "past week," or "past month."
- Avoid wording questions so that socially desirable behaviour is obvious in the question or the response options. Consider sensitivity of questions (e.g., diet, sexual behaviour, drug use).
- Questions that are acquired from previous surveillance surveys may introduce less measurement error than new questions that have not yet demonstrated reliability.
- Consider cognitive testing of questions.



Types of measurement error are defined and included under Resources at the end of this section.

# QUESTIONNAIRE DEVELOPMENT

## IMPORTANT CONSIDERATIONS

**Determining which risk factors to measure** The following need to be taken into account in determining which risk factors to measure:

- Number and significance of associated health problems—morbidity, mortality, Disability Adjusted Life Years
- Global NCD priorities
- Policy or intervention that are available/possible
- Ease and accuracy of collecting data
- Risk factor prevalence levels

**Determining how data will be used** Consider the purpose of asking each question with regard to how the data will be used. There are many ways in which data collected through a behavioural risk factor surveillance can be used. In designing your questionnaire, consider the following data uses:

- Monitoring health behaviours in population groups
- Planning programmes or interventions
- Developing policies
- Producing research findings
- Providing public information
- Monitoring progress of global, regional, or national health objectives

The first step in constructing a questionnaire is to consider what kind of data is wanted or needed. It also is important to consider the data needs of organizations involved or impacted by the surveillance efforts.



See examples of how data are used from the U.S. Behavioral Risk Factor Surveillance System under Resources at the end of this section.

**Using standard versus modified questions** Using standard and well-developed questions from the global, regional, or national level module helps you avoid having to assess reliability and validity of locally developed questions. Further, a standard set of questions used across countries or locations within a country will enhance comparability of data.

## QUESTIONNAIRE DEVELOPMENT

## ACTION STEPS

information from it.

After the questionnaire is translated, have it translated back to the original language, preferably by someone other than the original translator, to check for problems that could undermine the validity of the questions being asked across subgroups. It is important that this task be conducted by an independent interpreter to ensure accurate translation.

In addition to the correct translation, cultural differences should be taken into account. An example from Mexico shows that "Pulque" is not always considered to be an alcoholic beverage. Some people view it as part of the regular diet. Only a quality translation will allow for questionnaire comparability between countries, or between any areas where different languages are used.

**Print the questionnaire** Each version of the questionnaire should be prepared as a camera-ready master for printing. Sufficient time should be scheduled to allow for reproduction of the questionnaire copies.

A general rule is to print 100 more questionnaires than the intended sample size, plus 5 copies per interviewer for use in training. This should provide an adequate number of questionnaires to conduct your survey.

**Review the questionnaire on a regular basis** Review your questionnaire between each surveillance implementation. The goal is to balance consistency over time against quality of information being yielded. Carefully consider making changes, and make changes only when necessary.

When feasible, cognitive testing of questions before implementation helps to ensure that respondents clearly understand the questions and provide accurate responses. A bibliography on cognitive testing is provided under Resources at the end of this section.



# QUESTIONNAIRE DEVELOPMENT

## ACTION STEPS

**Develop the core questionnaire** Questions included in the core questionnaire should reflect behaviours that contribute to the leading causes of death and illness globally, regionally, and nationally. This helps to ensure that the questions address the most critical noncommunicable disease (NCD) issues.

Core questionnaire items also should be linked to interventions that are either currently available or have the possibility of being developed. Collecting data with no linkage to specific policy or programmatic efforts would have questionable utility and would seriously undermine the sustainability of data collection efforts.



Questionnaires item from global and regional surveys are provided under Resources at the end of this section.

### Develop and select optional questions

Risk Perceptions

Personality Inventories

Health Questionnaire

Questions that are not in the core questionnaire can be used as optional modules. Taking respondent burden into account, a decision can be made as to how many NCD topics can be included in a questionnaire, and to what extent detailed information is needed for any given NCD topic.

Leaving room on a questionnaire for sites to add questions that are important at the local level increases buy-in, support, and participation.

### Pilot test the questionnaire

Schedule adequate time to allow for a pilot test of the questionnaire, as well as for the survey administration process. Use the results of the pilot test to:

- Check and improve question wording, directions, and transitions between questions and questionnaire sections.
- Check and improve the administrative process of data collection, including interviewer directions and clarification notes in the interviewer protocol.

### Translate the questionnaire

The cost of translation will impact the number of languages into which the questionnaire can be translated. If there are numerous subpopulation groups in your country, balance the cost of translation against the cost of obtaining the sample sizes required. If a particular group is small in number and/or difficult to access, you may need to consider other approaches to collecting

# QUESTIONNAIRE DEVELOPMENT

## Standards:

1. Ensure that good trend data are obtained.
2. Ensure that data collected are directly linked to prevention use.

# QUESTIONNAIRE DEVELOPMENT

Questionnaire design and development require careful thought so the data collected provide information that can be used by a wide range of audiences, including decision makers, researchers, politicians, and the public.

Questionnaire development **Action Steps** include:

1. Develop the core questionnaire.
2. Develop and select optional questions.
3. Pilot test the questionnaire.
4. Translate the questionnaire.
5. Print the questionnaire.
6. Review the questionnaire on a regular basis.

**Important Considerations** to take into account when developing a questionnaire include:

1. Determining which risk factors to measure.
2. Determining how data will be used.
3. Using standard versus modified questions.
4. Maintaining a balance between question consistency and quality of information collected.
5. Decreasing measurement errors.
6. Designing the questionnaire.
7. Determining the length of questionnaire.
8. Translating the questionnaire.
9. Using site-added questions.
10. Treating questionnaire development as an iterative process.
11. Using a consensus-building approach to questionnaire development.
12. Developing questionnaire comparability across countries.

For PREPs:  
Consumption of non-PREPs  
+ PREPs  
Increasing PREP smoking  
by — %

**Goals and Standards** are:

Goals:

1. Work toward validated questionnaire sections and items.
2. Minimize respondent burden.